



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

Handwritten signature/initials

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/680,280

10/07/2003

Jong Sik Paek

AMKOR-021G

7297

7663

7590

03/09/2004

STETINA BRUNDA GARRED & BRUCKER

75 ENTERPRISE, SUITE 250

ALISO VIEJO, CA 92656

EXAMINER

NHU, DAVID

ART UNIT

PAPER NUMBER

2818

DATE MAILED: 03/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/680,280

Applicant(s)

PAEK, JONG SIK

Examiner

David Nhu

Art Unit

2818

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 October 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-44 is/are pending in the application.
- 4a) Of the above claim(s) 1-24 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 25-44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 10/103,048.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____



DETAILED ACTIONS

Claims 25-44 are present for examination. Claims 1-24 are cancelled.

Drawings

1. There is no a conductive layer (24) and a third surface (23) in figure 4. See Specifications, page 6.

Abstract

2. The abstract of the disclosure is objected to because legal phraseology such as “**comprise**” is used. Correction is required. See MPEP & 608.01(b).

Claims Objection

3. Claims 25, 44, “the third surfaces” should be -- the third **surface** --

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 25-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lo et al (6,507,120 B2) in view of Ohuchi et al (6,208,021 B1).

Regarding claim 25, 35, 44, Lo, figures 1-12, and related text on col. 1-6, (figures 7-12, col. 3, lines 64-67, col. 4, lines 1-60), disclose a method of manufacturing a semiconductor package, comprising the steps of: providing a semiconductor die 210 having opposed first and second surfaces 212, 214, a peripheral edge, and a plurality of bonding pads 216 disposed on the second surface in close proximity to the peripheral edge 228; providing a plurality of leads 202

Art Unit: 2818

which each include a first surface, a second surface disposed in opposed relation to the first surface, and a third surface disposed in opposed relation to the second surface and oriented between the first and second surfaces; electrically and mechanically connecting the bonding pads of the semiconductor die to the third surface of respective ones of the leads through the use of conductive bumps 218.

It is not that Lo does not teach the step of applying an encapsulant to the leads, the semiconductor die and the conductive bumps to form an encapsulating portion which at least partially encapsulates the leads, the semiconductor die and the conductive bumps such that the first and third surfaces of each of the leads are covered by the encapsulating portion and the second surface of each of the leads is exposed therein.

However, Ohuchi, figures 1-14, and related text on col. 1-12, (figures 8-14, col. 2-4, lines 1-67, col. 7-9, lines 10-67, lines 1-67), teach the step of applying an encapsulant to the leads 12, the semiconductor die 1 and the conductive bumps 9 to form an encapsulating portion 6 which at least partially encapsulates the leads, the semiconductor die and the conductive bumps such that the first and third surfaces of each of the leads are covered by the encapsulating portion and the second surface of each of the leads is exposed therein.

Regarding claims 26-34, 36-43, Lo, figures 1-12, col. 1-6, Ohuchi, figures 1-14, col. 1-12.

It would have been obvious to one having ordinary skill in the art at the time of the present invention to apply the teachings of Ohuchi into Lo as both are related to the same subject matter of manufacturing a chip package having a first surface and a second surface opposite to the first surface; a die/chip having first and second surface, an edge, and plurality of

Art Unit: 2818

bonding pads; providing a plurality of leads; applying an encapsulant to the leads, the die, and the conductive solder bumps/balls to form an encapsulating portion.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Khor'680, Lee'997 are cited as of interest.

7. A shortened statutory period for response to this action is set to expired 3 (three) months and 0 (zero) day from the date of this letter. Failure to respond within the period for response will cause the application to become abandoned (see 710.02 (b)).

8. Any inquiry concerning this communication on earlier communications from the examiner should be directed to David Nhu, (571)272-1792. The examiner can normally be reached on Monday-Friday from 7:30 AM to 5:00 PM. The examiner's supervisor, David Nelms can be reached on (571)272-1787.

The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956

David Nhu *DN*

February 26, 2004

